

# Human Nutrition

Human Nutrition

## V(A). Planned Program (Summary)

### 1. Name of the Planned Program

Human Nutrition

## V(B). Program Knowledge Area(s)

### 1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
402	Engineering Systems and Equipment		0%		25%
702	Requirements and Function of Nutrients and Other Food Components		50%		25%
703	Nutrition Education and Behavior		25%		25%
724	Healthy Lifestyle		25%		25%
	<b>Total</b>		100%		100%

## V(C). Planned Program (Inputs)

### 1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.5	0.0	2.5
<b>Actual</b>	0.0	2.1	0.0	1.5

### 2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	66787	0	45171
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	14045	0	404346
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	41930	0	0

**V(D). Planned Program (Activity)****1. Brief description of the Activity**

We recruited twenty Caucasian women and 40 African-American women to study the differences in cardiovascular risk factors associated with obesity. This project also conducted an intervention study for obesity in African-American women since they have greater incidence of obesity and obesity-associated health problems. Half of the African American participated in a weight-loss program and the other half was used as the control group. The weight-loss program include week "slim-eating" nutrition education and tread-mill exercise program. African-American women had higher plasma triglyceride level. The blood pressure, plasma glucose and cholesterol were not affected by race. The participants who consistently participated in eating-slim nutrition education and exercise reduced body weight. The biochemical analysis of blood samples for cardiovascular risk factors will be reported later.

The objectives of the second project are: 1. Designing and fabricating MEMS based impedance biosensor system. The device will consist of two arrays of 3-D interdigitated electrodes (IDE) and a fluidic channel with an inlet and outlet. Each IDE array will consist of 100 pairs of gold electrode fingers fabricated using surface micromachining and photoresist sacrificial layer. 2. Immobilizing the antibody using the Self-Assembled Multilayer (SAM) process. We will use the Self-Assembled Multilayer (SAM) process to immobilize the antibodies onto the IDE. This stage will provide the binding between bacteria and antibodies due to the high affinity between them. 3. Testing the device using impedance measurements. We will analyze the biosensor for the detection and selective identification of *E. coli* O157:H7 in beef when used in conjunction with the immobilized antibodies and determine the magnitude and phase of the impedance of the bacteria effect alone. The effect of frequency on impedance measurements will be monitored and analyzed.

**2. Brief description of the target audience**

African-Americans, low-income families and other under represented groups in St. Louis, Kansas City, Southeast Missouri and Jefferson City areas in the State of Missouri.

**V(E). Planned Program (Outputs)****1. Standard output measures****Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	200	500	100	200
2008	300	160	400	100

**2. Number of Patent Applications Submitted (Standard Research Output)****Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008:	0

**Patents listed****3. Publications (Standard General Output Measure)****Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

1) Number of publication 2) Number of presentation 3) Number of workshops 4) Number of contacts 2007: number of presentation: 2 number of workshops: 6 number of contacts (direct & indirect): 1,000 2008: Number of publication:1 Number of presentation, workshops and contacts : Same as in 2007 2009: Same as in 2008 2010: Same as in 2008 2011: Same as in 2008

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1007	300

**V(G). State Defined Outcomes**

O No.	Outcome Name
1	Increase knowledge of good nutrition measured by surveys pre- and post-nutrition education. Increased awareness about relationship between nutrition and physical activity and chronic diseases measured by periodic surveys in research subjects and other clientele. increase nutrition knowledge and awareness of importance of nutrition for prevention of chronic diseases by 90% of participants in direct contacts and 70% of indirect contacts.
2	-Number of citations of publications by other scientists in scientific papers. -Use of research results by nutrition extension and health care specialists. I-improvement of eating behavior and physical activities. -Decrease in percentage of overweight and obesity in research and extension participants. Medium-term: 2007 - measurable weight reduction (1-5%) in overweight and obese subjects and clientel. Utilization of research outcomes by the extension specialist (2-3 good nutrition guides). measurable weight reduction (1-5%) in overweight and obese subjects and clientele 2008 - Utilization of research outcomes by the extension specialist (2-3 good nutrition guides). 2009 - Same as 2008. 2010 - Same as 2008 and number of citations of publications = 10 2011 - Same as 2008 and number of citations of publications = 15
3	Measurable improvements in public health and reduction in health care costs for specific population such as African-Americans, low-income families and other under represented groups. Expect 80% positive response of those contacted.

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

Competing Public priorities

**Brief Explanation**

One faculty retired effective January 2009.  
Faculty position in Extension program did not get filled.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

Before-After (before and after program)

Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

**Key Items of Evaluation**